

Serial No. 10/775,496  
Amendment dated February 6, 2006  
Reply to Office Action November 7, 2005

## **REMARKS**

### **New Matter Added to Original Disclosure**

It was stated that applicant added new matter to the original specification, particularly as to the word "quarry" on page 8 of the last response, which amended page 6, lines 19-26, and page 7, lines 1-8 of the specification. Deletion of this term was advised.

Reconsideration is requested. Applicant finds the word "quarry" on page 4, lines 26 and 29, and page 5, line 5. Actually, the amendment to the paragraph at page 6, lines 19 through 26, was in error in that the word "quarry" was originally present in line 23 and only "the" should have been underlined.

Applicant has corrected 47.5 to 4.75 as suggested.

### **Non-Elected by Original Presentation**

Newly presented claim 14 was withdrawn from consideration as being directed to a non-elected invention in that it was directed to a concrete pavement and not to a concrete composition. A new claim 15 has been added with much of the same subject matter but drafted to depend from claim 3. This claim is discussed below.

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Claims Rejected - 35 U.S.C. 112, First Paragraph

Claims 3-13 were rejected under 35 U.S.C. 112, first paragraph, it being stated that "applicant's specification requires certain specific amounts of cement, sand, coarse aggregate (i.e., limestone), and water to obtain a high compressive strength".

Applicant's tables 3 and 5 on pages 11 and 13 were referred to as teaching "specific amounts of these components that are required to obtain a high compressive strength". It should be pointed out that the specific amounts listed are exemplary and not intended to be limiting. There are fairly wide ranges of amounts of these components which will yield the desired range of compressive strength. It is believed that those skilled in the art can readily determine suitable amounts of cement, sand as a fine aggregate, and water depending upon their requirements. Claim 3 has been amended to emphasize that it is the size and quantity of the limestone particles, which distinguish over the prior art.

35 U.S.C. 112, Second Paragraph

Claims 3-13 were rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which the applicant regards as the invention. This rejection is based on the same consideration as the one above. Applicant is now claiming a specific range of the size of particles in the coarse aggregate in the amended claim 3, as described above. Again, the artisan can readily determine the amounts of sand,

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cement, and water to use based on his requirements. It is believed that this amendment will overcome the 35 U.S.C. 112 problem.

Claim Rejections - 35 U.S.C. 102

Claims 3-13 were rejected under 35 U.S.C. 102 (a and b) as anticipated by

Turpin, Jr. '105 B1

Sawara et al. '831 B1

Cangiano et al. '502

Wagh et al. '493

Urschel III et al. '716

Nelles '107

GB 2085865 (Walters)

Rols et al.,

Orlovskii,

Popko et al.

Yamamoto et al. (JP 2001039756)

Choi et al. or

Shi et al.

The Turpin, Jr. patent relates to the use of limestone dust as an admixture or accelerator and combined with cement. It is entirely unrelated to the use of small grains

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crushed limestone as a coarse aggregate for concrete. A study of the various formulations mentioned indicate that in all cases he is relying simply on sand as a coarse aggregate and the entire specification has to do with various mixtures with cement to provide the fine aggregate. Since applicant's invention relates to mixtures of limestone in various sizes as making the coarse aggregate, this reference would seem to be far wide at the mark and not anticipatory of applicant's claims.

The Sawara patent also involves various mixtures of ingredients making up the fine aggregate mixed with the cement. While it is mentioned that coarse aggregate is used, it is described only as crushed stone. We have no details as to this crushed stone aggregate. Applicant is claiming limestone as a coarse aggregate, and we have no reason to believe that this coarse aggregate is anything other than a usual mix of crushed stone involving substantial proportions of sizes larger than 9.5 mm.

The Cangiano et al. patent relates entirely to a formulation of Portland Cement including extremely fine limestone particles as an additive or extremely fine clinker particles. It has nothing whatever to do with proportions of limestone utilized for the coarse aggregate. This reference is believed to be quite unrelated to applicant's disclosure and claimed subject matter.

The Wagh et al. patent relates to a formulation for quick setting concrete and provides no details whatever as to the coarse aggregate used in this concrete. Certainly, there is no information about grading of aggregates to create the coarse

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aggregate. It is believed that this reference is also essentially unrelated to applicant's disclosure.

The Urschel III et al. patent teaches the use of "dolomitic limestone as a low-silicone manufactured fine aggregate". This is combined with a limestone coarse aggregate, the only definition of which appears "No. 57 stone which has a screen analysis from 1" mesh to No. 4 inch mesh". This obviously is considerably larger than that which applicant is claiming herein and therefore it is quite clear that the coarse aggregate described in this patent is substantially different from that claimed in the present application.

The Nelles patent is also for a concrete formulation, but it is described as having a coarse aggregate which "may be pebbles, crushed rock of various types and products of various types of combustion such as slag and cinders". The patent is primarily directed to the use of concrete using crushed limestone as part of a fine aggregate, which is a byproduct of a lime kiln. It is apparent from this description that the coarse aggregate of the concrete of this patent is quite unlike the coarse aggregate of the applicant.

The British patent 2085865 teaches a concrete composition wherein the coarse aggregate is described as "generally consists of gravel or crushed natural rock or stone substantially all the particles of which are between 5 mm and 20 mm in size". This describes a usual mix of rock or stone for coarse aggregate. Since applicant's coarse

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aggregate is limited to 9.5 mm there obviously is a substantial difference both as to size of particles and their composition. One batch described "coarse aggregate comprises of limestone particles of sizes in the range of 3 mm to 6 mm". These dimensions are within the general range described by applicant; however, claim 3, as amended, also recites a coarse aggregate in which "the amount of said coarse aggregate finer than 4.75 mm is close to, but not exceeding  $\frac{2}{3}$  of the total weight of aggregate". At the same time, of course, claim 3 recites, "small grains crushed limestone finer than 9.5 mm" which effectively means that approximately  $\frac{1}{3}$  of the mix is between 4.6 and 9.5 mm in size. It is believed clear, therefore, that applicant's head claim covers a range of sizes quite different from that described by the British patent.

The Rols et al. abstract describes development of an admixture for self-leveling concrete. As such, it provides no description of a coarse aggregate. The fine limestone dust described is mixed with the cement and other ingredients, such as fly ash, to provide self-leveling concrete. There is no teaching whatsoever of any particular size or range of sizes of limestone for use as a coarse aggregate. This reference is believed essentially unrelated to applicant's disclosure.

The Orlovskii abstract relates to utilization of sulfur-contained waste as a by-product of the chemical industry for production of concrete with limestone dust being used in this process. Again, this has essentially no relation to the use of specific and substantially larger sizes of limestone used as a coarse aggregate for normal concrete.

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This reference is believed to be totally unrelated to applicant's claims.

The Popko et al. abstract also refers to the making of concrete with dust from rotary lime kilns having a content of very fine limestone waste, which can be used in ground and unground form. Rubble in sizes from 5-20 mm is described as coarse aggregate. This coarse aggregate is of normal size and contains particles much larger than claimed herein. It is believed that this reference is not anticipatory or capable of rendering obvious the subject matter of applicant's claims.

The Yamamoto Japanese patent describes "concrete with high strength and low carbon emission. It does not describe details of any coarse aggregate used in combination with the other ingredients including cement, all of which make up a fine aggregate. It apparently is considered that the coarse aggregate is gravel or limestone of normal size or crushed granite which can be selected from any suitable source. In any event, there is no teaching in this Japanese patent of a use of the claimed sizes of limestone as a coarse aggregate in making the concrete.

The Shi abstract, which relates to a paper describing "the use of crushed limestone dust in production of self consolidated concrete" is similar to references previously discussed in that the entire burden of this paper is to deal with the problem of use of limestone dust as a cement additive instead of coal fly ash. Again, it is totally unrelated to the use of small grains crushed limestone as a coarse aggregate for concrete. There is no discussion of the coarse aggregate and certainly no hint of the

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specific sizes of limestone, which are claimed.

The Choi et al. publication deals with "porosity and strength properties of permeable concrete using limestone mine wastes as coarse aggregate for concrete". The pavements of this concrete are specifically designed to enhance drainage of rain water of parking lots, etc. It is stated that "strength properties of permeable concrete were greatly influenced by the grain size of aggregate and void filling ratio in comparison with the containing ratio of limestone mine waste". The abstract does not contain requirements as to grading of the limestone mine waste as a coarse aggregate so we have no real idea as to the sizes of this limestone waste, and therefore there is essentially no teaching applicable to the present disclosure since applicants are not concerned with permeable concrete. It is therefore believed that this reference falls far short of providing any anticipation of applicant's claims.

The Siegemann abstract suggests that the use of large quantities of waste from quarries was found to be economically practicable chiefly by using the limestone rubble in the manufacture of concrete. No information is given as to the dimensions of such rubble, but in judging from the necessity of separation of this material from sand by washing and the necessity of exposure to fire, the minimum dimensions of such rubble would be expected to be at least 5 mm. It therefore would not anticipate a coarse aggregate wherein approximately 2/3 of the limestone is finer than 4.5 mm. Again, this reference is believed to provide no teaching or anticipation of the subject matter of the



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applicant's claims.

New claim 15 is dependent upon claim 3 and adds collectively, the particle size ranges described in claims 7, 8, and 9. Applicant finds no teaching of a concrete having coarse aggregate of the sizes set forth so claim 15 is believed to clearly distinguish over the prior art cited.

It is believed that the claims presently in the application are properly allowable and favorable action is requested.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Robert C. Smith", is written over a horizontal line.

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